

REMARKS

Claims 18 and 19 have been amended. Claims 21-24 are newly added. Support for the amendment may be found through out Applicant's Specification. No new matter has been added.

Accordingly, claims 1-24 are pending. Reconsideration and allowance of the present application based on the following remarks are respectfully requested.

Claims 4, 5, 11 and 12 were rejected under 35 U.S.C. § 112, second paragraph as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. Applicant traverses this rejection for at least the following reason.

With respect to claims 4 and 11, the Office Action asserts that "the term 'low' is unclear because it is a relative term, and without a standard to which to compare, the term 'low' is meaningless." (Office Action, page 2). Further, with respect to claims 5 and 12, the Office Action asserts that "it is not clear with respect to which temperature the coefficient is low or has a substantially zero coefficient." (*Id.*). Applicant disagrees with both assertions.

MPEP § 2173.05 (b) provides:

The fact that claim language, including terms of degree, may not be precise, does not automatically render the claim indefinite under 35 U.S.C. 112, second paragraph. *Seattle Box Co., v. Industrial Crating & Packing, Inc.*, 731 F.2d 818, 221 USPQ 568 (Fed. Cir. 1984). Acceptability of the claim language depends on whether one of ordinary skill in the art would understand what is claimed, in light of the specification.

Moreover, "[w]hen a term of degree is presented in a claim, first a determination is to be made as to whether the specification provides some standard for measuring that degree." *Id.* Applicant submits that the limitations of claims 4 and 11 reciting "...a material having a low coefficient of thermal expansion," and the limitations of claims 5 and 12 reciting "...a material having a substantially zero coefficient of thermal expansion," are definite in light of Applicant's Specification. For example, paragraph [0030] of Applicant's originally-filed Specification discloses that the material may be, e.g., a ZERODUR<sup>TM</sup> glass ceramic or ULE<sup>TM</sup> glass. Further, Applicant submits that one of ordinary skill in the art would be able to readily ascertain the coefficient of thermal expansion for these materials. For example, ZERODUR<sup>TM</sup> glass ceramic has a coefficient of thermal expansion of  $0 \pm 0.10 \times 10^{-6}/K$  ( $0^{\circ} - 50^{\circ}C$ ); and ULE<sup>TM</sup> glass has a

coefficient of thermal expansion of  $0 \pm 0.10 \times 10^{-9}/K$  ( $5^{\circ} - 35^{\circ}C$ ). *See, e.g.,* <http://www.pgo-online.com/intl/katalog/zerodur.html> (copy attached); and <http://www.pgo-online.com/intl/katalog/ule.html> (copy attached). Indeed, both of these materials have very low coefficients of thermal expansion, of which the magnitude is substantially zero.

Similarly, new claims 21 and 23 recite "... a material having a coefficient of thermal expansion having a magnitude of less than or equal to  $0 \pm 0.10 \times 10^{-6}/K$  ( $0^{\circ} - 50^{\circ}C$ ).” Applicant submits that this amendment is proper and does not introduce any new matter, since it merely recites inherent properties of materials which were originally disclosed in Applicant’s Specification, as discussed above. *See* MPEP § 2163.07(a) (“By disclosing in a patent application a device that inherently performs a function or has a property, operates according to a theory or has an advantage, a patent application necessarily discloses that function, theory or advantage, even though it says nothing explicit concerning it. The application may later be amended to recite the function, theory or advantage without introducing prohibited new matter.”).

Accordingly, Applicant submits that the claims are definite and respectfully requests that the rejections of claims 4, 5, 11 and 12 under 35 U.S.C. § 112, second paragraph, should be withdrawn and the claims be allowed.

Claims 1, 4, 5, 8, 11, 12 and 20 were rejected under 35 U.S.C. § 103(a) as being unpatentable over U.S. Patent Application Publication No. 2002/0064655 to Morin, SR. et al. (“Morin”). Applicant traverses this rejection for at least the following reason.

Applicant submits that the cited portions of Morin fail to disclose, teach, or suggest a method of manufacturing a component that will, in use, experience a thermal load and will be operated at a mean operating temperature, the method comprising, *inter alia*, selecting a material having a coefficient of thermal expansion having a zero-crossing at a first temperature;

manufacturing the component using the selected material at a second temperature, wherein the first temperature is between the second temperature and the mean operating temperature, so as to minimize deformation of the component at the mean operating temperature, as recited in claim 1. Similarly, Applicant submits that the cited portions of Morin fail to disclose, teach, or suggest a component for use in a lithographic apparatus, the apparatus being configured to project a patterned beam of radiation onto a target portion of a substrate, wherein

the component is made of a material having a coefficient of thermal expansion having a zero-crossing at a first temperature between a second temperature at which the component is manufactured and a mean operating temperature of the component, as recited in claim 8.

For example, the cited portions of Morin disclose a reinforced material for use in belt application having a tailored coefficient of thermal expansion which may be negative, zero or positive. (See paragraph [0005] of Morin). Further, the cited portions of Morin disclose that the coefficient of thermal expansion may be tailored as a function of the deposition of brass onto the fibers. (See paragraph [0011] of Morin). Even assuming *arguendo* that the tailoring step of Morin may correspond to selecting a material having a coefficient of thermal expansion having a zero-crossing at a first temperature, the cited portions of Morin simply make no mention or suggestion of a second temperature nor a mean operating temperature. Indeed, the cited portions of Morin fail to disclose, teach, or suggest manufacturing the component using the selected material at a second temperature, wherein the first temperature is between the second temperature and the mean operating temperature, so as to minimize deformation of the component at the mean operating temperature.

Accordingly, Applicant submits that a *prima facie* case of obviousness has not been established and that the cited portions of Morin, fail to disclose or render obvious each and every element recited by claims 1 and 8. Claims 4, 5, 11, 12 and 20 depend from claims 1 and 8, respectively, and are patentable for at least the same reasons provided above related to claims 1 and 8 and for the additional features recited therein. Thus, Applicant respectfully requests that the rejections of claims 1, 4, 5, 8, 11, 12 and 20 under 35 U.S.C. § 103(a) over Morin should be withdrawn and the claims be allowed.

New claims 21-24 depend from claims 1 and 8, respectively, are patentable for at least the same reasons provided above related to claims 1 and 8 and for the additional features recited therein. Thus, Applicant respectfully requests that claims 21-24 be allowed.

Claims 1-20 were rejected under the judicially created doctrine of obviousness-type double patenting over claims 1-14 of U.S. Patent No. 6,747,730. Without conceding to the propriety or the merits of the rejection and while preserving the right to distinguish over the cited reference, Applicant submits herewith a terminal disclaimer in compliance with 37 CFR 1.321(c).


Accordingly, Applicant requests that the rejection of claims 1-20 under the judicially created doctrine of obviousness-type double patenting be withdrawn and the claims be allowed.

In view of the above, Applicant respectfully submits that all the claims are allowable and that the entire application is in condition for allowance.

Should the Examiner believe that anything further is desirable to place the application in better condition for allowance, the Examiner is invited to contact the undersigned at the telephone number listed below.

Respectfully submitted,

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Enclosures:

ZERODUR<sup>TM</sup> glass ceramic Specifications  
ULE<sup>TM</sup> glass Specifications  
Terminal Disclaimer